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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/615,011	07/08/2003	Daniel Lyle Callahan	200308561-1	8183
22879	7590	07/25/2005		
HEWLETT PACKARD COMPANY P O BOX 272400, 3404 E. HARMONY ROAD INTELLECTUAL PROPERTY ADMINISTRATION FORT COLLINS, CO 80527-2400			EXAMINER BUI, HUNG S	
			ART UNIT	PAPER NUMBER
			2841	

DATE MAILED: 07/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.	Applicant(s)	
	10/615,011	CALLAHAN ET AL.	
	Examiner	Art Unit	
	Hung S. Bui	2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 1 and 2 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>07/08/2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Claims 1-2 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected claimed invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 06/24/2005.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 3-7 and 10-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Sinha et al. [US 6,475,011] in view of Haselby et al. [US 6,299,460].

Regarding claims 3, 11-13 and 15, Sinha et al. disclose an electronic component system (figure 2b) comprising:

- a land grid array module (212);
- a printed circuit board (215) having a first side (216) and a second side (217);
- an interposer (214) disposed between the module and the first side of the printed circuit board (figure 2b);
- a backing plate (250) spaced from, and disposed on the second side of the printed circuit board opposite the first side;

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- a plurality of posts (220) extending through and connecting each of module, the printed circuit board, the interposer, and the backing plate relative to each other (figure 2b); and
- a curved spring member (270) disposed between the backing plate and the second side of the printed circuit board, and having a first portion (274) in secured contact with the backing plate and a second portion in unsecured (278), pressing contact against the second side of the printed circuit board by a bushing support (246).

Sinha et al. disclose the instant invention except for the spring being pressing contact against the second side of the printed circuit board adjacent a center of the printed circuit board.

Haselby et al. disclose a spring loaded backing plate assembly (figure 3) having a printed circuit board (52) with a first and second sides and a spring (120, 124, 126), wherein the spring is pressed against the second side of the printed circuit board adjacent a center of the printed circuit board.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the spring arrangement of Haselby et al. in Sinha et al., for the purpose of providing even contact pressure.

Regarding claims 4 and 14, Sinha et al. disclose the second portion of the spring member comprising a central body portion and the first portion of the spring member comprises a plurality of leg members radially (figure 5) extending outward from the central body portion with an end of each leg member including a hole (280) configured

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for receiving one of the posts to secure the spring member relative to the backing plate (figure 2b).

Regarding claim 5, Sinha et al. in view of Haselby et al. disclose the legs and the central body portion being configured with a curved shape to be contacted the second side of the printed circuit board.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use spring design of Sinha et al., as suggested by Haselby et al., in order to provide even compressive clamping forces.

Regarding claim 6, Sinha et al. further disclose the spring member includes the hole of each leg member having an elongate shape configured to permit limited sliding movement of each leg of the spring member relative to each of the posts (figure 5).

Regarding claim 7, Haselby et al. disclose the central body portion of the spring defining a body of material formed without holes (figure 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the spring without hole in the central body portion of Sinha et al., as suggested by Haselby et al., for the purpose of strengthening the spring.

Regarding claim 10, Sinha et al. in view of Haselby et al., disclose the instant invention except for the spring member being a single member.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the spring member of Sinha et al., as modified, as a single piece for the purpose of providing even compressive clamping forces on the printed circuit board.

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Regarding claims 16-19, the claimed method steps would have been inherent in the product structure.

4. Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sinha et al., as modified, as applied to claims 3 and 8 above, and further in view of Unrein [US 6,885,557].

Regarding claim 8, Sinha et al., as modified, disclose the instant invention except for the backing plate having a recess portion defined in a main body of the backing plate that is configured to receive the ends of the spring member.

Unrein discloses a system assembly (figures 2-3) having a backing plate (16) including a recess portion (18) defined in a main body of the backing plate that is configured to receive a plurality of ends of a spring member (20).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the backing plate design of Unrein of the backing plate of Sinha et al., as modified, for the purpose of secured spring in the central body of the backing plate without securing by fasteners/posts.

Regarding claim 9, Unrein further discloses the recessed portion having a width less than a width of the main body and a length less than a length of the main body, and the spring member is sized and shaped to be removably secured within the recessed portion of the backing plate (figures 2-4).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the backing plate design of Unrein for the backing plate of Sinha et al., as modified, in order to replace/remove the spring in the system.

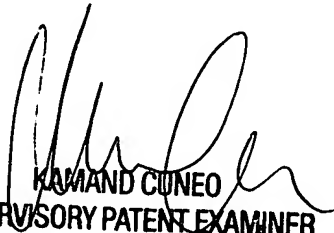
Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung S. Bui whose telephone number is (571) 272-2102. The examiner can normally be reached on Monday-Friday 8:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on (571) 272-1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

7/21/05
Hung Bui
Art Unit 2841


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